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DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

200 FAIR OAKS LANE, 4TH FLOOR

FRANKFORT KENTUCKY 40601

[www.kentucky.gov](http://www.kentucky.gov)

January 27, 2011

Northern KY Sanitation District No. 1  
Attn: Jeffry Eger, Executive Director  
1045 Eaton Dr  
Ft. Wright, KY 41017

RE: Northern KY Sanitation District No. 1  
AI # 2449  
Ash Street Force Main

Dear Mr. Eger:

Thank you for submitting a Green Project Reserve (GPR) business case for your proposed project, funded through the Clean Water State Revolving Fund (CWSRF). A provision of the 2011, CWSRF funding cycle requires that to the extent there are eligible project applications; states shall use 20% of its Clean Water State Revolving Fund capitalization grant for green infrastructure projects. These projects are intended to address water and energy efficiency improvements or other environmentally innovative activities. The Kentucky Division of Water (KY DOW) has reviewed the GPR business case for the Ash Street Force Main and Collectors project, and has found the justification to be acceptable. If the scope of the project is altered in any way to exclude the GPR eligible components, the Northern KY Sanitation District No. 1 shall submit the changes in writing to the KY DOW and receive prior approval in writing before proceeding with construction.

We look forward to working with you in finalizing your wastewater infrastructure project. If you have any questions regarding this correspondence, please contact me at (502) 564-3410, ext 4832.

Sincerely,

Greg Goode, P.E.  
Kentucky Division of Water

Cc: Jim Turner, SD1  
CWSRF File

*Kentucky*

updated

## GREEN COMPONENT SUPPLEMENT TO THE 2011 CWSRF AND DWSRF CALL FOR PROJECTS

During the 2011 Call for Projects held October 2009 through March 2010, the below referenced project was identified as "green" or included "green" components. In order to determine the green costs and whether or not the project is considered categorically green or whether a business case will be required, the Division of Water needs additional information.

Attached to this email is the current Green Guidance for the 2011 funding cycle. Green projects are classified as projects that address: Water Efficiency, Energy Efficiency, Green Infrastructure or Environmentally Innovative Activities. The guidance discusses each of these categories and the components or types of projects that would require a business case versus a classification of categorically green.

Please review the attached guidance and complete the below information. **In order for green merits of the project to be included as such on the 2011 Priority List, this form must be completed and returned via email to Division of Water no later than May 17, 2010.**

Questions or completed forms should be submitted to the Division of Water contacts noted below:

Clean Water SRF

Anshu Singh  
Anshu.singh@ky.gov  
502-564-3410 ext. 4805

Drinking Water SRF

Amanda Yeary  
Amanda.yeary@ky.gov  
502-564-3410 ext. 4839

*Note: An itemized list of components and their related costs are all that is required at this time.*

Applicant (Must be governmental entity): Sanitation District No. 1 of Northern Kentucky

Project Name: Ash Street Force Main and Collectors

WX / SX Number (required): SX21037110

Please provide contact information for questions relating to this form only:

Contact Name: Mr. Kyle Boyle  
Email: kboyle@sd1.org  
Telephone: (859) 547-1644

1) Based on the attached guidance, do you consider your project a 100% green project?

Yes \_\_\_\_\_ No X \_\_\_\_\_

3) Total Project Cost related to “green” components (all categories): \$ 1,033,000

**KIA/SRF Green Project Reserve  
Business Case for Ash Street Force Main and Collectors  
Sanitation District No. 1  
December 3, 2010**

**Energy Efficiency**

Install 20" diameter force main instead of 18" diameter: \$108,000

The larger diameter force main results in less head loss, thereby reducing the pump horsepower needed. Horsepower requirements and operating time determine the amount of kilowatt-hours of electricity consumed. The difference in the pump(s) required for each condition is 90 horsepower (250 hp versus 160 hp). This is a direct energy savings of 36%.

Combination Air/Vacuum Valves and Vaults: \$49,000

The valves act to bleed the air from and provide relief from vacuum conditions within the pipe, which serves to reduce the head conditions that the pumps operate under. Air restrictions in the pipe can cause a 10-15% decrease in the pipeline's handling capacity and can be a permanent drain on the operating efficiency of the system.

I and I correction – Silver Grove Sewer Replacement: \$280,000

This portion of the project will eliminate a gravity sewer that is a chronic source of wet weather inflow and infiltration. During a one-inch rain event, it is estimated that over 2 million gallons of I & I is transported and treated, and these events occur many times throughout the year. The gravity sewer is being replaced by a low-pressure collection system and a portion of new gravity sewer.

**Green Infrastructure**

Trenchless Technology installation methods: \$300,000

Boring and Jacking and Directional Drilling methods are used in areas where it is necessary to prevent the disturbance of the existing environment. These areas may include wetlands, streams and riparian zones and natural habitats and environments.

Restoration and Enhancement of Riparian Buffers: \$1,182,000

The construction project will affect approximately 30 riparian areas, either stream crossings or infringement on buffer zones. The requirements for restoring these areas include, but are not limited to installation of filter fabric, rip rap, topsoil, mulch, woven fabric face, live stakes, shrubs and trees. Some of these locations will be improved from existing conditions, which were caused by past practices of clear-cutting, mowing, agriculture and grazing, by re-establishing buffer zones.

**TOTAL GREEN COMPONENTS:** **\$1,919,000**

**KIA/SRF Green Project Reserve  
Business Case for Ash Street Pump Station  
Sanitation District No. 1  
December 3, 2010**

**Energy Efficiency**

High Efficiency Pumps, HVAC and Electrical Equipment: \$1,200,000

The efficiency of a motor is directly related to the power consumption. An increase in the efficiency results in a decrease in electrical costs. For example, a 20 HP motor that is 80% efficient and operates 8 hours per day uses 149.2 kW-hrs of electricity, while a 90% efficient motor uses 132.6 kW-hrs, a savings of 11%. The advantage of High Efficiency motors is extremely evident when large horsepower motors are required. The submersible pumps for this project will be approximately 160 HP and 93% efficient. Other equipment, while smaller, will be of similar efficiency.

Heat Recovery Unit \$50,000

The winter design conditions are 0 F outside and 55 F inside the odor control room. The odor control room requires 6 air changes per hour (ACH). During the heating season the total load is approx 275,300 Btu/Hr without an energy recovery unit. The load drops to 139,250 Btu/Hr utilizing an energy recovery unit resulting in an estimated energy savings of 136,050 Btu/Hr per heating season or approximately 49% drop in energy usage.

High Efficiency insulation and building materials \$100,000

By increasing the roof/ceiling insulation from R-30 to R-38 and increasing the wall insulation from R-6 to R-21 estimated energy savings is 10,900 Btu/Hr per season or approximately 8% of the total energy usage.

**Green Infrastructure**

Permeable pavement, bioretention areas and rain garden: \$194,000

The driveway and parking areas will be constructed with a permeable pavement system to prevent stormwater runoff. Retention areas will be constructed using rain garden designs with native grasses and plants to store the discharge from roof downspouts. Both of these designs allow for infiltration of the stormwater back to the aquifer or to other natural drainage paths, and will prevent any increase in wet weather flows from the project site.

**TOTAL GREEN COMPONENTS:** **\$1,544,000**